

We claim:

1. An isolated pluripotent neuronal cell having the capacity to differentiate into at least different types of nerve cells, said cell being further characterized by
  - a. having a migratory capacity whereby the cell is capable of travelling from a first location where the neuronal cell is administered to a second location at which there is at least one tumor cell;
  - b. having the ability to travel through and around a tumor, whereby a plurality of the neuronal cells are capable of surrounding the tumor; and
  - c. having the capacity to track at least one infiltrating tumor cell, thereby treating infiltrating and metastasizing tumors.
2. The neuronal cell of claim 1 wherein the neuronal cell comprises an isolated neural stem cell.
3. The neuronal cell of claim 1 wherein the neuronal cell has been treated to secrete a cytotoxic substance.
4. The neuronal cell of claim 1 wherein the neuronal cell has been transformed with factors that directly promote differentiation of neoplastic cells.
5. The neuronal cell of claim 1 wherein the neuronal cell has been transformed with viral vectors encoding therapeutic genes to be incorporated by tumor cells.
6. The neuronal cell of claim 1 wherein the neuronal cell has been transformed with viral vectors encoding suicide genes, differentiating agents, or receptors to trophins to be incorporated into tumor cells.

7. The neuronal cell of claim 1 wherein the neuronal cells administered on the same side or a contralateral side of the brain from the tumor are capable of reaching the tumor.

5 8. A method of converting a migrating neuronal cell to a migrating packaging/producer cell, said method comprising

a. providing a neuronal cell which constitutively produces a marker such as  $\beta$ -gal;

10 b. cotransfecting the neuronal cell with an amphotropic pPAM3 packaging plasmid and a puromycin selection plasmid pPGKpuro;

c. selecting transfected cells in puromycin;

d. selecting for cell surface expression of the amphotropic envelope glycoprotein coat;

15 e. isolating cells by fluorescent activated cell sorting using monoclonal antibody 83A25;

f. screening the cells of step e for their packaging ability by assessing which colonies packaged lacZ into infectious viral particles;

20 thereby producing a migratory neuronal cell capable of being transfected with a gene of choice, so that viral particles expressing the gene of choice are produced and disseminated over a wide area of the central nervous system by a plurality of the transfected packaging cells.

25 9. The method of 8 wherein step f is performed by a virus focus assay for  $\beta$ -gal production.

10. The method of 8 wherein the gene of choice is a prodrug activation enzyme.

30 11. The method of claim 10, wherein the prodrug activation enzyme is *E.coli* cytosine deaminase (CD), HSV-TK or cytochrome p450.

12. The method of claim 10, wherein the prodrug activation enzyme is *E.coli* cytosine deaminase (CD).

5 13. A novel cell packaging line for the central nervous system, said cell line comprising neuronal cells which constitutively produce a marker such as  $\beta$ -gal,

the neuronal cells having been cotransfected with an amphotropic pPAM3 packaging plasmid and a puromycin selection plasmid pPGKpuro;

10 the transfected cell being selected in puromycin, for cell surface expression of the amphotropic envelope glycoprotein coat and for fluorescence using monoclonal antibody 83A25, and for their packaging ability by assessing which colonies packaged lacZ into infectious viral particles;

the resulting cells being capable of packaging and releasing particles or vectors which, in turn, may serve as vectors for gene transfer to central nervous system cells.

15 14. The novel cell packaging line of claim 13, wherein the particles are replication-defective retroviral particles.

20 15. The novel cell packaging line of claim 13, wherein the vectors comprise replication-conditional herpes virus vectors.